

## **Load Reduction Instruction: Different Associations in Mathematics vs. English Classrooms**

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Load reduction instruction (LRI) is an emerging approach to theory-driven pedagogical practices in the classroom. Integrating research from cognitive load theory and effective teaching, LRI presents a model for teaching that provides appropriate guidance and support for students as they progress from novices to experts. Thus far, empirical work has shown that LRI has positive benefits for students' school outcomes, including their achievement, engagement, and motivation. However, in much of the research on LRI to date, researchers have focused on its benefits for students' academic outcomes in science or mathematics classrooms. Although it is theorised that LRI would also have significant benefits in literacy classrooms, this has yet to be examined directly. Thus, in the current investigation, we examined the associations between students' perceptions of LRI and their academic achievement in both mathematics and English classrooms. We also investigated the extent to which teacher-reported LRI was associated with classroom academic outcomes as well as the agreement among teacher- and student-reported LRI. Secondary school students ( $N=1052$ ) completed two surveys to report on their perceptions of LRI in the classroom: one for their English class and one for their mathematics class. The students also completed an achievement quiz for each subject. In addition, students' English and mathematics teachers ( $N=76$ ) self-reported on their LRI practices in the classroom. We examined the data using a multilevel multiple membership model (MMM). MMM are a type of multilevel model that accounts for the nesting of multiple surveys taken by the same student (i.e., most students completed both an English and mathematics survey) as well as the nesting of students into different classes with different teachers. Thus, we were able to examine the associations among students' perceptions of LRI and their achievement in both subjects and examine the associations between teacher-reported LRI and achievement in both subjects. Results demonstrated that student-reported LRI had a positive association with achievement in mathematics but not in English. At the class-level, there was a positive association between teacher-reported LRI and achievement, but, again, only in mathematics. There was no agreement among students and teachers on LRI in either subject area. Overall, results suggest that LRI holds different associations with achievement in different subject areas. Both the theoretical and practical implications of the results will be discussed.